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RIVER BASIN MANAGEMENT IN VIETNAM: SECTORAL AND CROSS-BOUNDARY ISSUES

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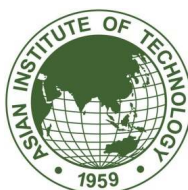


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List of Acronyms and Abbreviations

ADB	Asian Development Bank
CNMC	Cambodia National Mekong Committee
DANIDA	Danish International Development Agency
DARD	Department of Agriculture and Rural Development
DI	Department of Irrigation
DoNRE	Department of Natural Resources and Environment
DWRM	Department of Water Resources Management
EVN	Electricity of Vietnam
GoV	Government of Vietnam
GWP	Global Water Partnership
IWRM	Integrated Water Resources Management
IRBM	Integrated River Basin Management
LWR	Law on Water Resources
MARD	Ministry of Agriculture and Rural Development
MoNRE	Ministry of Natural Resources and Environment
MRC	Mekong River Commission
NWRC	National Water Resources Council
PC	People's Committee
RBC	River Basin Committee
RBM	River Basin Management
RBO	River Basin Organization
RRC	Red River Committee
RBPMB	River Basin Planning Management Board
RBEP	River Basin Environment Protection Committee
SCN	Sesan Community Networks
SPN	Sesan Protection Network
SRBPMB	Sub-River Basin Planning Management Board
ToR	Terms of Reference
VEA	Vietnam Environment Authority
VNMC	Vietnam National Mekong Committee
WARECOD	The Center for Water Resources Conservation and Development
WB	World Bank
WRM	Water Resources Management

1. INTRODUCTION

The concept of Integrated Water Resources Management (IWRM) throws up a new challenge in water management, manifest in the physical-ecological borders of river basins or catchment areas. River basin is an important management unit in WRM, and the most appropriate geographical scale for the planning and management of water resources (Savenije & Zaag, 2000), particularly in the IWRM. The widely used definition of 'river basin' is borrowed from the 1967 Helsinki Rules on the Uses of the Waters of International Rivers (Mostert et al., 2000; Svendsen, Wester, & Molle, 2005; Molle, Wester, & Hirsch, 2007; Thim, 2010), which was later used in several river basin agreements or protocols (Agreement on Sava River Basin, Protocol for Sustainable Development of Lake Victoria Basin). In brief, river basin is a geographical area determined by the watershed limits of a system of waters, both ground and surface, flowing to a common terminus.

Since its nature is not always constrained by a single political-administrative boundary but by a hydro-geographical one, the management of river basin is expected to cover the management of other related resources within the basin. Given the interaction of the ecological system and civil society in a basin, sustainable basin-wide management also has to take into consideration anthropogenic activities that use or affect the water system. Mostert et al. (2000) extended the concept of river basin management (RBM) to include 'the management of water systems as part of the broader natural environment and in relation to their socio-economic environment'. Such an integration of socio-economic aspects into water management with a basin-wide approach paved the way for the implementation of IWRM. Nevertheless, while offering a new spatial context, Integrated River Basin Management (IRBM) also created the possibilities of 'problems of spatial fit' as the political territory no longer fits the functional space (Moss, 2004). The new area for actions of river basin is also vulnerable to NIMBYism (Not In My Backyard) or may suffer the "Tragedy of the Commons" when common resource problems appear.

Disparities between functional space and political territory can only be removed through the reorganization of political territories, or through functional cooperation among responsible jurisdictional authorities (Young, 1999; Moss, 2004). River Basin Organization (RBO), albeit not a new concept, is expected to solve the problem of the 'Common's Dilemma' by bringing interdependent actions into an integrated entity (Hooper, 2005). There is no standard or fixed model for an RBO. Indeed, the mandate and the structure of RBOs vary according to the needs as well as the insitutional context. RBOs can be classified into three groups (Millington, 2000): (i) as a river authority that takes charge of development and management; (ii) as a basin commission that undertakes basin-wide planning, policy and strategy setting, data and information generation, with only a limited development and operation role; and (iii) as a coordinating committee/council that focuses more on policy setting and overall resource management oversight, and does not involve itself in day-to-day management matters.

The application of IWRM or River Basin Management and the establishment of RBOs has given rise to a significant number of concerns and criticism about the necessity and effectiveness of RBOs. This report describes and analyzes recent initiatives on river basin management in Vietnam, and the issues of current governance modalities related to these initiatives.

The report is structured into four major parts reflected in the following five sections. The first part of the report reviews the framework of water resources management in Vietnam, and its shift from the conventional approach to IWRM with a focus on management at river basin level. The issues in inter-provincial RBM are synthesized and analyzed in Section 5 with some examples. The third part analyzes cross-border issues in trans-national RBM by examining the case of the Sesan Basin in Vietnam. The report concludes by discussing the key findings on RBM in Vietnam and suggests an appropriate modality for water resources management in the country here and now.

2. WATER RESOURCES AND WATER STORAGE INFRASTRUCTURES IN RIVER BASINS IN VIETNAM

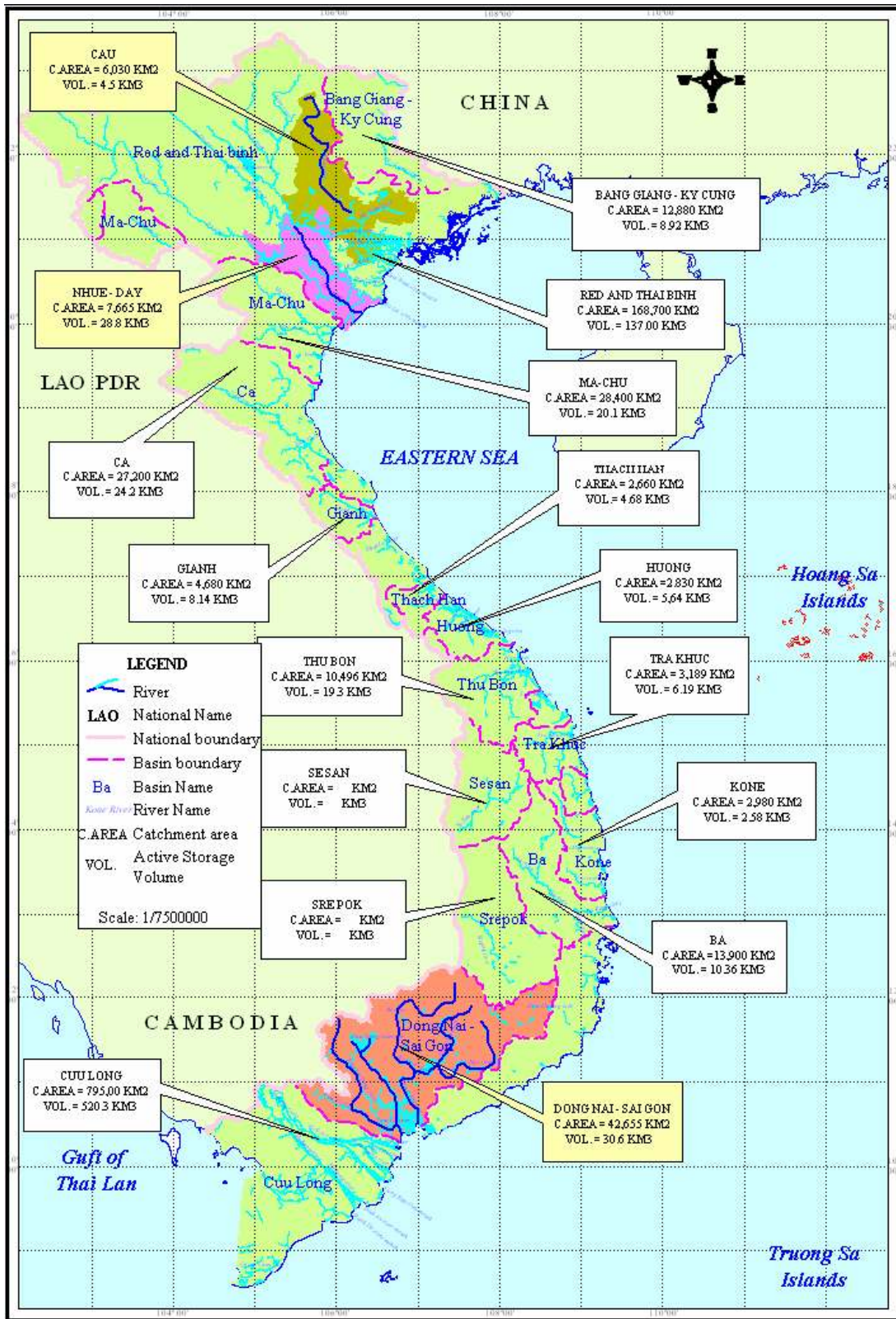
2.1 Rivers and River Basins in Vietnam

Vietnam is characterized by a dense system of rivers and canals. The country has 2,360 perennial rivers longer than 10 km, and 14 basins larger than 2,500 km², including Bang Giang-Ky Cung, Hong-Thai Binh, Ma, Ca, Vu Gia-Thu Bon, Ba, Sesan, Srepok, Dong Nai va Cuu Long (also called the Mekong) (see Figure 1). These account for 80 percent of the country area. Many of them are international water bodies. Out of the total 1,167,000 km² basin area of local and trans-boundary rivers in Vietnam, 329,570 km² (28.2 percent) is located within the country (MoNRE, 2006).

Major rivers, such as, the Cuu Long (including the Tien and Hau rivers in Cuu Long Delta), Red and Ca Rivers have their headwaters located in other countries. Only middle and small-scale rivers are found locally. Some of the tributaries of the Mekong River originate in Vietnam, flow through Lao PDR or Cambodia (i.e., Se San, and Srepok Rivers), join the Mekong, and then return to Vietnam.

Due to the tropical monsoon climate and mountainous area that characterizes three-quarters of the country's total land area; precipitation varies by place and time. This leads to an uneven distribution of annual precipitation, which alters the flow of rivers and causes drought during the low-flow season and flooding in the high-flow season. The national average precipitation has a wide variation, ranging from a high of 4,000-5,000 mm to a low of 500-600 mm (a difference of 10 times). Except for these areas of particularly high or low precipitation, the average rainfall ranges from 1,400 mm to 2,400 mm per year.

Figure 1. Major River Basins in Vietnam



Source: MoNRE et al. (2006)

2.2 Water Storage Infrastructure in Major River Basins in Vietnam

Vietnam has developed a system of water infrastructure, consisting of dams, reservoirs, pumping stations and other hydraulic works. As of 2012, Vietnam had 7,500 water storage infrastructures located in ten major river basins across the country (WARECOD, 2012). These water infrastructures were developed for (i) irrigation and agricultural uses; (ii) flood control; (iii) water supply; and (iv) poverty reduction, soil improvement and tourism (Vietnam Academy for Water Resources, 2012). The country is also investing in other strategic water infrastructure and hydropower plants, and currently has 25 large-scale hydropower plants (capacity larger than 100 MW), which are operational or under construction, and another 14 plants, which have been approved for construction or are under planning (Vietnam National Committee on Large Dams and Water Resources Development, 2012). Here is a look at the water storage infrastructure in the major river basins:

- There are currently 29 irrigation structures, 900 water storage structures, 1,300 dams and thousands of pumping stations within the Hong-Thai Binh River Basin (WARECOD, 2012). The Hoa Binh Hydropower Plant, which has a capacity of 1,920 MW and a reservoir area of 5.9 million m³, is located on a tributary of the river. Other hydropower plants in the basin include Thac Ba (108 MW); Tuyen Quang (342 MW); and Son La, the largest hydropower plant of Vietnam with a capacity of 2,400 MW. Two other storage structures used for agricultural and industrial purposes include the Nui Coc Reservoir (168 million m³) and Cam Son Reservoir (242 million m³), respectively (WARECOD, 2012).
- The Ma river basin accommodates more than 1,800 irrigation works, two of which are Cua Dai Reservoir and Bai Thuong Dam. In addition, two large-scale pumping stations, Hoang Nam and Nam Song Ma, and many other reservoirs were constructed to support agricultural production in the area (WARECOD, 2012).
- The Ca international river basin and its tributaries house 3,193 small to large-scale water infrastructures of which 1,578 are water storage structures, 459 are dams and 1,155 are pumping stations. The Ho Ho hydropower plant was constructed in the basin in 2004 with a capacity of 14 MW (WARECOD, 2012).
- The Ba River Basin, where the annual precipitation reaches 1,740 mm, has an annual outflow of 10 billion m³. Four hydropower plants, An Khe-Ka Nak, Krong Hnang, Song Hinh and Song Ba, which have a total capacity of 377 MW, have also been built in the basin. The government has approved the construction of eight more hydropower plants (WARECOD, 2012).
- The Vu Gia-Thu Bon River Basin has a high potential for hydropower development. At least 10 hydropower plants and 962 irrigation infrastructures are currently planned for construction in the basin. As of 2012, the basin had four hydropower plants (Dak Mi 4, Song Tranh 2, A Vuong and Song Con 2), and 820 irrigation works, comprising 72 reservoirs, 546 dams and 202 pumping stations (WARECOD, 2012).
- The Srepok River Basin has five large-scale hydropower plants, including Dray Hlinh, Buon Tou Srah, Buon Kop, Srepok 3, and Srepok 4, with a total capacity of 613 MW, and 529 hydraulic structures (436 reservoirs, 79 dams, and 14 pumping stations), which are used for agriculture and water supply. As per the master plan of the Srepok River Basin Development, the basin will have a total number of 750 irrigation works and five hydropower plants (WARECOD, 2012).
- There are plans to develop seven hydropower plants and 673 irrigation structures (serving 59,000 ha) in the Sesan River Basin. In 2012, the government constructed six hydropower plants, including Se San 3, Se San 3A, Se San 4, Se San 4A, Plei Krong and Yali, and 455 irrigation structures serving an area of 24,029 ha (WARECOD, 2012).
- Ten hydropower plants and 911 irrigation structures, including 406 reservoirs, 371 dams and 134 pumping stations, have been constructed in the Dong Nai River Basin. Hydropower plants in the Dong Nai River Basin were developed both on the main stream and on the river's tributaries (WARECOD, 2012).

The development of a large number of water storage structures indicates the significant role played by river waters in Vietnam's agriculture and energy sector. Since rain-fed agriculture remains the backbone of the country's development strategy, Vietnam has continuously utilized water resources to accelerate economic growth. Furthermore, industrialization coupled with rapid population growth has led to a greater demand for energy, which is sought to be met by hydropower development. It is in this backdrop that water resources are expected to be used intensively to serve industrial, agricultural and domestic demand, which in turn will entail the construction of more water infrastructure on the river basins.

Vietnam is not only experiencing a deterioration of water quality and quantity in its major basins, it is also facing challenges in WRM. For instance, WARECOD (2012) reported that the modified hydraulic flow in the Huong River Basin was a consequence of hydropower development leading to a change in the local ecosystem. It also pinpointed the lack of an effective RBM mechanism to tackle water allocation and other water use conflicts among various stakeholders in the river basins, particularly in cross-border river basins, such as, Ma, Red, Dong Nai, Sesan and Srepok River Basin (WARECOD, 2012). The section below discusses at length the various WRM issues in the major river basins of Vietnam.

2.3 Current Conditions and Major Issues of Water Resources in Vietnam

Table 1 summarizes the condition of water resources and major issues plaguing WRM in nine of the largest river basins of Vietnam. The conditions and issues vary considerably by river basins. The chief among them are emerging issues, such as, water scarcity, saline intrusion during the dry season, and flooding in the rainy season. The table below also gives an initial implication of these issues on water management in the river basins of Vietnam, which can be the basis for further studies committed to improving the management of water resources in the country.

Table 1. Water Resource Status by River Basin

River Basin	Water Condition during Dry Season		Water Condition during Flood Season			Surface Water Pollution	Ground Water Availability & Pollution	Watershed Degradation
	Water Shortage	Salinity Intrusion	River Flood	Inundation and Drainage	Damage Level by Flash Flood			
Bang Giang, Ky Cung	Medium, has smallest dry flow among North east rivers		Medium	Medium inundation (~10,000 ha agriculture land annually)	High	Low	Low pollution	
Hong (Red)	Low	Medium	High: flooding is a major issue in Red River Delta	High, especially in low land and estuary. Difficult to drain water; need to use pumps	Medium	Variable	High potential	High
Ma	High river volume in the latter months of the dry season is not enough for winter & spring crops in Chu and Len rivers. Limited water supply for domestic use.	High, saline intrusion reaches far upstream in the Len river in the dry season and constrains irrigation and domestic water supply.	High. The Ma river basin is annually affected by storms and tropical depressions that cause heavy rain and floods.	High. Downstream area gets inundated by upstream floods, with heavy loss of crops.	Narrow and steep upstream watersheds, high potential of flash flood.	Low, little pollution from industrial domestic waste	Low groundwater pollution. In rainy season, the Ma River can be largely recharged from groundwater, and be available for use.	
Ca	Downstream water levels are generally not enough for irrigation in dry season. Deteriorating flow	High saline intrusion in many places in the estuaries and lower part of the river (at the end	High, flooding occurs frequently. Serious flooding by storms and heavy rains. Lack of multi-purpose reservoirs	High	High	Low	Low	

River Basin	Water Condition during Dry Season		Water Condition during Flood Season			Surface Water Pollution	Ground Water Availability & Pollution	Watershed Degradation
	Water Shortage	Salinity Intrusion	River Flood	Inundation and Drainage	Damage Level by Flash Flood			
	in the dry season, more turbidity in the flow. Droughts happen annually in May and June.	of dry season (March), saline intrusion may reach up to 20 km from the river mouth)	to regulate flow.					
Thu Bon	Very low flow in the dry season (less than 1 percent of the total annual flow discharge), causing shortage of water and saline intrusion in the dry season	Saline intrusion in the dry season	High flood intensity, high potential for major floods	High; soil erosion of river bank due to floods is serious	High; upstream tributaries cause flash floods	High potential		
Ba	Drought may be severe. The Ba River has the lowest average flow among major southern rivers	In the dry season, the flow is low; intrusion of salinity is 15-20 km upstream from the river mouth.	High; serious flooding downstream	High	Medium	Low	Low	High
Dong Nai	High. Agriculture faces shortage of water in the dry season. Need to increase storage capacity or take	High. Saline intrusion is a problem.	Highest concentration of flow during the flood season compared to other national rivers	Medium. Many areas of the river basins are affected by floods	Low	High	Low	

River Basin	Water Condition during Dry Season		Water Condition during Flood Season			Surface Water Pollution	Ground Water Availability & Pollution	Watershed Degradation
	Water Shortage	Salinity Intrusion	River Flood	Inundation and Drainage	Damage Level by Flash Flood			
	other steps to meet the irrigation demand							
Mekong	Medium. Local shortage of water due to low flow in the dry season. (Volume of dry season accounts for 15 percent to 25 percent of the total annual volume)	High. Saline intrusion is characteristic of the region. Currently, more than 1 million ha is affected by saline water	High. Widespread, uncontrolled and prolonged flooding. Many places are faced with inundation ranging from 2 m to 4 m	High. Flood and inundation is prolonged. The volume of water during the flood season accounts for 70 percent to 85 percent of the annual volume of water flow. The northern delta is inundated due to flooding while southern delta is inundated due to poor drainage	Low	Medium	Low but high potential	
Srepok	High; drought is very severe in the dry season, water shortage occurs in many places in the Srepok basin; there are conflicts on water extraction	None	Low	Low. Annual floods cause serious inundation in low-lying cultivated land	Low	Low	Low. Intensive ground water withdrawal	High

River Basin	Water Condition during Dry Season		Water Condition during Flood Season			Surface Water Pollution	Ground Water Availability & Pollution	Watershed Degradation
	Water Shortage	Salinity Intrusion	River Flood	Inundation and Drainage	Damage Level by Flash Flood			
	between upstream and downstream areas							

Note: None: Not applicable or unknown; Low: level of pollution is low; High potential: did not happen in recent years but may occur in the future
Sources: Vietnam National Water Resources Profile (2003)

3. CONVENTIONAL MANAGEMENT OF WATER RESOURCES IN VIETNAM

The Laws on Water Resources (LWR) of 1998 is considered the country's first law that clearly defines water as a natural resource that needs to be managed and protected. Only the Law on Environmental Protection adopted in 1993 mentions water as 'a component of the natural environment' (Article 2.1) and states that 'People and the state authorities must protect the environment from degradation, pollution and other (disastrous) environmental consequences' (Article 10). Before these two, Vietnam did not have any laws on comprehensive uses of water resources (MARD, 2012).

Earlier, water resources management was solely linked to and specified for irrigation, flood control or hydraulic works, for which provisions were made in legal instruments such as the Ordinance 1998 on Dikes, the Ordinance on Flood Control and Prevention 1993, and the Ordinance 1994 on Exploitation and Protection of Hydraulic Works. The Ordinance 1989, Article 11, for instance, states: "No expansions of any structures in the (dike) protection areas or in the river-bed which may harm the dikes or block the flood water flow are allowed". The Ordinance on Exploitation and Protection of Hydraulic Works, Article 17 specifies: "Water users from hydraulic works must make use of the water effectively and protect the water environment (in the hydraulic works)". The conventional management of water resources in Vietnam encouraged the use of water for specific purposes, and generally considered water as an abundant (and unlimited) resource with little focus on water resource allocation. Protection measures were stipulated mainly for water-related infrastructure, not for water.

LWR 1998 asserts the prime importance of water as a resource and provides the legal basis for managing, protecting and using water resources. The concept of 'integrated use of water resources' was introduced in Article 3.10 and 5.2 of the LWR. Article 5.2 states that water resources protection must subsume [...] effective, efficient and safe exploitation and integrated use of water resources. Although the term 'River Basin Management' does not explicitly occur in the Laws¹, the basin-wide management of water resources was implied in Article 5.1 which states: 'The protection, exploitation and use of water resources must be based on the planning of river basin approved by the authorized agencies, ensuring the consistency of river basin regardless of the administrative boundary', and in Article 20: 'The regulation and distribution of water resources must be based on the planning of the river basin and the real potential of the water source...'

Article 64 also assigns the river-basin management to MARD and lists out the management tasks, including the (i) preparation, submission and inspection of river-basin planning, ensuring consistency with administrative boundary planning; (ii) coordination with functional organizations of respective Ministries, Departments and Divisions in conducting surveys, inventory and assessment of water resources in river basin and in preparing, submitting and inspecting the planning of river tributaries; and (iii) provision of advices on resolving water disputes in river basins. Decree No. 179/1999/ND-CP stipulating the implementation of the Law on Water Resources also insists that "Authorized management agencies, based on the river basin planning, must report the availability of water resources to ministries and departments concerned for them to make socio-economic plans well-grounded in the potential of water resources". However, there was no emphasis on the necessity of RBOs.

In 2000, the National Water Resources Council (NWRC) was established as an advisory body to the Central Government of Vietnam (GoV) on strategies and policies related to national water resources, planning of major river basins, inter-basin water transfers, management of international water

¹ The amended LWR 2012 clearly states 'WRM must be consistently based on river-basin, water source and should take management decisions based on administrative boundary'

resources and resolution of water conflicts between ministries and agencies, or ministries and provinces (Article 2, Decision No. 67/2000/QĐ-TTg dated 15/06/2000 by GoV). The office of NWRC is under Ministry of Agriculture and Rural Development (MARD) and is financed by the GoV. The establishment of NWRC provided an institutional instrument responding to the provisions under Article 64 of the LWR 1998 on the management agency for river basins.

In 2002, the Ministry of Natural Resources and Environment (MoNRE) was established and authorized to take over the water resources management. It marked a major turn in the country's management of water resources by clubbing them with the management of environment and other natural resources, and by taking water resource management away from the irrigation and drainage service under MARD, and other water services away from other ministries (Sajor & Thu, 2009). However, the shift led to plenty of institutional and implemental issues in WRM, in particular RBM, which are analyzed in the next two sections.

4. INTRODUCTION OF RIVER BASIN MANAGEMENT AND ESTABLISHMENT OF RIVER BASIN ORGANIZATIONS IN VIETNAM

4.1 Evolution of River Basin Management in Vietnam

The issuance of LWR 1998 provided the legal basis for establishing RBOs in Vietnam (Tu, Dung, & Van, 2011), when it adopted the two perspectives of sustainable use of water resources and the need for coordination and collaboration among stakeholders. However, the Red River Committee (RRC), which was established in 1961 under the Ministry of Irrigation, can be considered the first RBO of Vietnam. RRC took the responsibility for basin-wide planning in terms of flood control, water supply and drainage, navigation, hydropower and cascade dams in the Red River Basin. At that time, the Committee performed its duties well (Tu, Dung, & Van, 2011), and was later reorganized as the Institute for Water Resources Planning and Management.

Later, the creation of RBOs in Vietnam was largely linked to international development assistance. After the passage of LWR 1998, ADB provided the Government of Vietnam (GoV) Technical Assistance (TA), from 1998 to 2001, to support water resources management in the Red River Basin. The TA covered three areas: (i) development of a policy and effective institutional framework for integrated water resources management (IWRM) in the Basin; (ii) development of a water sector information system that focuses on the changing demands, hydrology, and land use; and (iii) priority studies addressing key functions of IWRM and the resolution of a set of critical water resources problems (ADB, 2001). Another TA, entitled 'Capacity Building for Water Resources Management', whose Sub-project No.3 aimed at the Assessment of Planning Needs in the Dong Nai River, was initiated in 2001 (ADB, 2006). The two TAs resulted in the establishment of RBOs in Red River Basin and Dong Nai River Basin. On April 9, 2001, Decision No. 39/2001/QĐ-BNN was promulgated to set up the Red-Thai Binh River Basin Planning Management Board (Red RBPMB).

The year 2001 also saw the establishment of Cuu Long² (Lower Mekong Delta) River Basin Planning Management Board (RBPMB) and Dong Nai River Basin Planning Management Board³. Cuu Long RBPMB was initiated by the World Bank under the 'Vietnam–Mekong Delta Water Resources Project'. The establishment of a delta-wide water resources management body (an RBO) that promotes coordinated water planning and management actions was used as an indicator for the achievement of intermediate outcome results of the project (The World Bank, 2008). The Australian Government also provided funding support through AusAID, and set up a project to develop an

² Decision No. 38/2001/QĐ/BNN- TCCB dated 09/04/2001 by MARD

³ Decision No. 38/2001/QĐ/BNN- TCCB dated 09/04/2001 by MARD

operational and coordination mechanism for water resources management and planning in the Mekong Delta basin. The three RBOs are three-tier organizations with a governing Board, a managing office or secretariat, and stakeholders (Molle & Hoanh, 2009). The RBOs are all under control of MARD, and their managing offices (or secretariats) are hosted by either the Institute of Water Resources/Irrigation Planning or the Southern Institute of Water Resources/Irrigation Planning, the planning agencies of MARD.

The creation of Cuu Long RBPMB started with stakeholder and community consultations in order to identify water management-related issues in the basin that are of great concern to the parties involved. These issues were IWRM tasks that the RBO needed to prioritize (Cantor, 2003), and which could serve as the organization's mandate. Conversely, a number of workshops involving the provincial officials of 26 provinces in the Red River Basin were only held in 2003 after the creation of Red RBPMB (in 2001) to clarify the issues at stake in RRB. The workshops were organized as activities of another TA by ADB: the two-phase Second Red River Basin Sector Project to build capacity for the RRBO (ADB, 2012).

Box 1. Authority and responsibilities of RBPMBs in Vietnam

1. To provide guidance and comments on river basin planning alternatives, surveys, inventories or assessments of water resources and other issues related to water resources management in the basin (to MARD);
2. To provide advice and comments on the implementation of river basin management plans for revision and amendment (to MARD);
3. To coordinate with line ministries, (international and national) organizations, sectors, agencies, or related provinces for implementing river basin plans and setting up a mechanism for data exchange and management;
4. To propose capacity building and awareness-raising activities on water resources management in the basin;
5. To report to MARD and other line ministries conditions and issues of water resources management in the basin;
6. To advice MARD on water conflict resolution and possibility of collaboration on water resources management in the basin; and
7. To ensure coordination among authorized state organizations for the implementation of international projects and partnerships in the basin.

Source: Adopted from Decision No. 14/2004/QĐ-BNN on 09/04/2004 by MARD

The roles and mandates of RBOs were finally legitimized in the Decision No. 14/2004/QĐ-BNN dated 09/04/2004 (see Box 1). After the decision, Vu Gia-Thu Bon River Basin Planning Management Board (Vu Gia-Thu Bon RBPMB) was established⁴ in 2005 as requested by People's Committee (PC) of Da Nang City, and Srepok River Basin Committee (Srepok RBC) was launched⁵ in 2006 as requested by PCs of four provinces, Dak Lak, Dac Nong, Gia Lai and Lam Dong Province. Srepok RBO was created under DANIDA's project of 'Integrated Water Resources Management in Ca and Srepok River Basin in the Central and Central Highland of Vietnam' (2003-2007). Unlike other RBOs, which are under MARD, the Srepok RBC is managed by the provincial PCs situated in the basin. In the case of Red RBPMB, the several workshops conducted for the Second Red River Basin Sector Project revealed that there was no critical basin-wide issue that needed to be solved. Hence, MARD proposed to

⁴ Decision No. 20/2005/QĐ-BNN dated 13/05/2005 by MARD

⁵ Decision No. 41/2006/QĐ-BNN dated 25/02/2006 by MARD

establish the Day Sub-River Basin Planning Management Board⁶ (or Day SRBPMB) and Cau Sub-River Basin Planning Management Board⁷ (or Cau SRBPMB) to assist Red RBPMB in fulfilling its mandates. Day SRBPMB and Cau SRBPMB are chaired by the Vice Chairman of the Provincial PCs in the basins and vice-chaired by Directors of the Department of Agriculture and Rural Development.

Box 2. Functions of RBEPs in Vietnam

1. To inspect and coordinate related Ministries, Departments and local authorities in river basin planning;
2. To propose policies and to suggest solutions to protect the water environment; exploit and develop water resources in long-term; and to prevent and mediate any harm caused by the water;
3. To manage the implementation of river basin plans;
4. To lead the establishment of river basin database, and to provide information needed for river basin planning;
5. To provide advice on water dispute resolution;
6. To assess and report the implementation of river basin plans;
7. To seek national and international funds to support river basin planning and implementation.

Source: Adopted from Decree No. 120/2008/ND-CP on 01/12/2008 by the GoV; Decision No. 171/2007/QD-TTg dated 14/11/2007; Decision No. 157/2008/QD-TTg dated 01/12/2008 and Decision No. 1404/QD-TTg dated 31/08/2009 by the GoV

The creation of MoNRE in 2002, and its role in the management of water resources and RBOs⁸ resulted in the establishment of the River Basin Environment Protection Committees (RBEPs) in the Cau⁹, Dong Nai¹⁰ and Nhue–Day River Basin¹¹. Unlike the RBOs established by MARD, which were largely funded by international organizations, the RBEPs are financed by the government, and their budgets are channeled through MoNRE. The position of chairperson of the RBEPs rotates among the Vice Chairpersons of PCs of the provinces where the river basins are located. The RBEPs are vice-chaired by Deputy Minister of MoNRE (RBEP of Nhue-Day has another Vice Chairman who is Deputy Minister of MARD). The functions of the three RBEPs are based on their mandates according to the Decree 120/2008/ND-CP dated 01/12/2008 by the GoV (see Box 2), which are similar to RBOs under MARD (see Box 1), except that the focus is more on water environment.

4.2 River Basin Management and RBOs and Administrative Separatism vis-à-vis Line Agencies in Water Resources Management

According to Decree No. 91/2002/ND-CP dated 11/11/2002 by the GoV, MoNRE was established to be ‘a governmental body to implement the state function of management over land, water resources, minerals, environment, meteorology, hydro-geography, geodesic survey and mapping’. The Decree affirmed the role of MoNRE in managing water resources, but created an uneasy situation since MARD, in the Decree No. 179/1999/ND-CP, was also assigned to take the lead in water

⁶ Decision No. 3365/QD-BNN/TCCB dated 01/12/2005 by MARD

⁷ Decision No. 07/2006/QD-BQLQHLVS dated on 05/09/2006 by Chairman of Red RBPMB

⁸ Communiqué No. 43/TB-VPCP dated 15/03/2007 by GoV, Decree No. 25/2008/ND-CP dated 04/03/2008 and Decree No. 120/2008/ND-CP dated 01/12/2008 by GoV

⁹ Decision No. 171/2007/QD-TTg dated 14/11/2007 by the GoV

¹⁰ Decision No. 157/2008/QD-TTg dated 01/12/2008 by the GoV

¹¹ Decision No. 1404/QD-TTg dated 31/08/2009 by the GoV

resources protection (Article 3, 4, 5 and 6), water resources exploitation and uses (Article 8 and 9), and to perform the state function of management over water resources (Article 13). The 2012 Decree did not contain either any amendment or suggestion to resolve this overlap. It also did not provide any change regarding the management of MARD over the RBOs. Molle & Hoanh (2009) tried to explain this overlap by arguing that 'MoNRE was established mainly to deal with the pressing issues at the time of integrating land administration and environmental management, especially pollution control, that were beyond the capacity of the former General Department of Land Administration; and that the role of MoNRE in water management was initially not a major concern'. But the omission of amendment clauses in the 2012 Decree triggered a turf war between MARD and MoNRE over their roles in managing the river basins and hosting RBOs.

Based on Article 3 of the Decree No. 179/1999/ND-CP concerning the structure of MoNRE, which considers the Department of Water Resources Management (DWRM) its line agency, the Ministry issued Decision No. 600/2003/QD-BTNMT on 08/05/2003, specifying the functions and responsibilities of the DWRM in assisting the Ministry in implementing the state management of water resources, comprising rainwater, surface water, underground water, and seawater in the country's land and sea territories.

Two months later, the GoV promulgated the Decree No. 86/2003/ND-CP, reasserting that MARD was 'a state authority responsible for state management functions over agriculture, forestry, salt industry, water resources for agricultural uses (or irrigation – explanation added)¹² and rural development of the country' (Article 1). With regard to irrigation, MARD's duties include management of (i) exploitation, use and protection of hydraulic works, water supply works for rural areas; (ii) river basin, and exploitation and integrated development of the rivers as regulated; and (iii) construction and protection of dikes, flood control infrastructure and disaster preparedness in riparian and coastal areas. The Decree, in an attempt to clarify the functions of MARD and MoNRE, and the administrative separatism in WRM at the national level, specified MARD duties in irrigation management.

MoNRE, it was specified, would perform the tasks in WRM according to Decree No. 91/2002/ND-CP. Nevertheless, due to Vietnam's agriculture-based economy, conventional water resources management in the country is intrinsically linked to water management for hydraulic agriculture. There is also a strong commitment toward increasing the production of rice as a means of economic development and poverty reduction and decentralizing the management of irrigation schemes (Taylor & Wright, 2001). Since Decree No. 86/2003/ND-CP did not distinctly define 'water resources management' or differentiate 'water resources management' from 'irrigation management', it failed to shed light on the administrative separatism in WRM, and instead created more confusion, and inter-ministry tension over the management of water resources (Molle & Hoanh, 2009). The legal documents issued in that period reveal this confrontation between MARD and MoNRE. Whenever one Ministry made a move, the other would make a prompt counter move.

As a response to MoNRE's Decision 600/2003/QD-BTNMT, MARD came up with Decree No. 86/2003/ND-CP, which established its Department of Irrigation (DI) – 'Cuc Thuy Loi' in Vietnamese (but consistently translated into Department of Water Resources by MARD 'as a means of bolstering its legitimacy over water resource management' (Molle & Hoanh, 2009)) via Decision No. 93/2003/QD-BNN. MARD, through its DI, was trying to strengthen its hold on the state management functions over water resources, not limited to water resources for agricultural use or irrigation. The

¹² In this report, 'thuy loi' in Vietnamese is translated into 'water resources for agricultural uses' or 'irrigation' to differentiate it from 'water resources', which literally means 'tai nguyen nuoc' in Vietnamese. It is based on the argument that MARD is responsible for agriculture and that 'water resources management' by MARD shall concern agricultural use of water, which is 'irrigation'. This interpretation is also more common among the Vietnamese and the authorities (Molle & Hoanh, 2009)

Department of Irrigation was entrusted with RBM and management of exploitation and integrated development of rivers. It was also made the secretariat and managing agency of the General Office for River Basins Planning Management Boards (Article 2). MARD was made legally responsible for RBO management, based on LWR 1998 and Decree No. 86/2003/ND-CP. Thus, it played a critical role in water planning and management as all these tasks had to be undertaken at the basin level as stated in the LWR 1998. MoNRE, which was responsible for submitting water resources policies, strategies and plans, was fully aware that it could not function properly and was forced to follow the basin plans prepared by MARD and its RBOs. Furthermore, the management of infrastructure planning, construction, exploitation and protection of hydraulic works, and water supply and drainage in rural areas was also given to MARD.

In urban areas, the Ministry of Construction was given the task of managing the water supply and drainage infrastructure planning and construction¹³, thereby reducing MoNRE to a purely regulatory advisory body compiling norms and standards for WRM at the national level. On the other hand, MARD was given power and authority over both water resources management and operation even though critics pointed out that such broad empowerment could end up with single sector-oriented planning in WRM, which was against the principles of IWRM (Taylor & Wright, 2001; Molle & Hoanh, 2009). It was argued that MARD, with its traditional focus on irrigation, would prioritize agricultural use of the country's water resources over demand from other sectors.

Aware of the decisive importance of river basin planning and management in water resources planning and management, MoNRE wanted to take over this function. Consequently, it prepared the National Strategy on Water Resources to 2020, which was approved in 2006¹⁴. The Strategy stated that sustainable and effective use of water resources required river basin and water resources planning, which should be closely monitored and implemented (Article 1.III, Section A.2). Subsequently, MoNRE was asked to 'organize and take the lead in implementing the strategy' (Article 2.2).

The re-distribution of power in RBM between MoNRE and MARD at the national level was expected to be completed at a meeting on March 5, 2007 when the Ministers of MARD and MoNRE, Director of Interior Ministry and Office of the Government, and Deputy Prime Minister met and decided that RBM functions shall be transferred from MARD to MoNRE¹⁵. There was also a consensus on shifting the management of the Vietnam Mekong River Committee from MARD to MoNRE. Later, on December 01, 2008, MoNRE issued the Decree 120/2008/ND-CP on River Basin Management. The Decree re-affirmed the importance of RBM in WRM and entrusted MoNRE with the task of river basin planning and implementation of basin plans.

MoNRE is now responsible for planning of major and inter-provincial river basins, while the Provincial PC undertakes the planning of local river basins (Article 17). MoNRE can also propose the establishment of RBOs in major river basins to the GoV, and establish RBOs in inter-provincial basins or sub-river basins. The Decree 01/2008/ND-CP by the GoV was issued on January 03, 2008 to replace the Decree No. 86/2003/ND-CP, in which no task related to river basin planning and management was assigned to MARD. Thereafter, Decree 25/2008/ND-CP issued on 04/03/2008 to replace the Decree No. 91/2002/ND-CP by the GoV clearly stated that MoNRE shall take the responsibility for 'leading the planning and preparation of management and exploitation plans for water resources for sustainable development, multiple uses and prevention of water degradation' (Article 2.6.c). Nevertheless, the management of the already-established RBOs was not mentioned in these documents, with the exception of the Vietnam Mekong River Committee, which was now delegated to MoNRE.

¹³ Decree No. 36/2003/ND-CP dated 04/04/2003 by the GoV

¹⁴ Decision No. 81/2006/QĐ-TTg dated 14/04/2006 by the Prime Minister

¹⁵ Communiqué No. 43/2007/TB-VPCP dated 15/03/2007 by the Office of Government

MoNRE, in its report on 'Vietnam Environment Monitor 2006' stated that the RBOs in the three basins established by MARD were no longer active (MoNRE, DANIDA, & WB, 2006), which disregarded the fact that Red RBO still prepared working plans for CSRBO and DSRBO in 2006. Later, MoNRE advised the GoV to establish the River Basin Environment Protection Committees (RBEP) in the Cau, Dong Nai and Nhue–Day River Basin, regardless of the existence of the RBO and sub-RBOs created by MARD. Hence, these three basins have two different RBOs, headed separately by MoNRE and by MARD. MoNRE provided space for MARD in the RBEPs on the same footing, as either Vice Chairman (in Nhue – Day RBEP) or Commissioner (in Cau and Dong Nai RBEPs). Although MoNRE tried to avoid duplication by naming the organizations 'River Basin Environmental Protection Committees' and by adding environment protection to their mandates, the functions of MARD RBOs and MoNRE's RBEPs are not very different (see Box 1). This will result in overlap of functions, and make it difficult to manage the river basin in accordance with the law. It is important to tackle this issue to put an end to the ongoing conflict between MARD and MoNRE.

Insufficient institutional settings for WRM, which have resulted in administrative separatism at the national level between MARD and MoNRE, have put Vietnam in a mess over RBM. Water utilization remains primarily sector-oriented, spearheading efforts to enhance agriculture and energy production. Disregarding the sanctioned discourse on sustainable use of natural resources, achievement of economic targets is a de facto priority in planning. In terms of water allocation to agriculture, it implicitly infers MARD's tenacious privileges of governing river basins, which is discussed further in Section 5. In hydropower development, planning of medium to small-scale hydropower plants has been entrusted to state-enterprises and other private investors, whose normative standpoint is profit-maximization. Even in large-scale hydropower planning, which is carried out by the central government, socio-environmental impacts, particularly cross-border ones, have not been given proper consideration. The dearth of positive intervention in trans-boundary hydropower management will be the focus of discussion in the following Section.

5. RIVER BASIN MANAGEMENT, RBOS AND CROSS-BORDER ISSUES

5.1 Vis-à-vis provincial governments and sub-provincial administrative jurisdictions and the national government

Ever since their establishment, RBPMBs and RBEPs have been deliberately assigned merely as the advisory bodies of MARD and MoNRE for planning and coordination in RBM. As IWRM underwent decentralization, Vietnam also tried to apply this principle to RBOs. Inter-provincial RBOs, therefore, are made to include Chairmen or Vice-Chairmen of PCs located in the basin. The structures of inter-provincial RBOs and RBEPs are presented in Table 2.

The RBOs in Vietnam are actually a mixed model because of the participation of ministerial agencies (i.e., MARD or MoNRE). It was explained by Molle & Hoanh (2009) that due to lack of technical capacity at the provincial and sub-provincial levels, RBOs, in their role as inter-provincial organizations, have had to handle cross-provincial issues. Yet, due to lack of an effective mechanism for ruling, negotiating and resolving cross-border conflicts, MARD or MoNRE still need to step in to resolve those conflicts. The span of control of MARD and MoNRE over the RBOs expands to finance whenever the budgets for RBOs are channeled through the ministries.

As such, both RBPMBs (or Sub-RBPMBs) and RBEPs include at least two levels of administrative jurisdiction, national and provincial, and two different types of executive agencies, administrative bodies (PCs) and line Ministries or implementing agencies (i.e., MARD, MoNRE, DARDs and DoNREs). Ideally, the RBOs have to be well integrated vertically and horizontally (Molle & Hoanh, 2009; Sajor &

Thu, 2009):

- Vertical integration requires interaction and collaboration at the ministerial, provincial and sub-provincial levels. MARD and/or MoNRE have to directly or indirectly (via their line agencies at provincial level, DARD and DoNRE) lead and support in handling cross-border issues and mediate conflicts (if any) between the provincial PCs;
- Horizontal integration requires the interaction and collaboration of agencies at the same administrative level. The provinces have to work collaboratively on the common issues in the basin, avoiding biases, while the provincial line agencies also need to cooperate with each other and with the provincial PC.

Table 2. Organizational Structures of Inter-provincial RBOs and RBEPCs in Vietnam

Position	RBPMBs proposed by MARD	Sub-RBPMBs proposed by MARD	RBEPCs proposed by MoNRE
Chairman	Deputy Minister of MARD	Vice Chairman of Provincial PCs (rotate)	Chairman of Provincial PCs (rotate)
Vice Chairman	Director of DARD Delegate of MoNRE	Delegate of DARD	- Vice Minister of MoNRE - Vice Minister of MARD (for Day-Nhue RBEPC)
Commissioner	<ul style="list-style-type: none"> i. Permanent Commissioners - Chairman of Provincial PCs - Delegates of Department of Irrigation, Dike Management and Flood Control Department, DWRM, IWRM (for RRBO), SIWRM (for Cuu Long Delta RBO) - Delegates of DARD, DoNRE - Delegates of Ministries concerned ii. Non-permanent Commissioners - Representatives of other national or local organizations and experts as invited 	<ul style="list-style-type: none"> i. Permanent Commissioners - Delegate of Red RBPMB - Delegates of DoNRE, Department of Public Health, Planning and Investment, Finance, Technology and Science ii. Non-Permanent Commissioners - Delegates from other departments concerned - Delegates of PCs at the district and commune levels - Organizations and individual as invited 	<ul style="list-style-type: none"> - Delegates of Provincial PCs - Delegates of other Ministries concerned

Source: Adopted from Decision No. 14/2004/QD-BNN on 09/04/2004 by MARD; Decision No. 171/2007/QD-TTg dated 14/11/2007; Decision No. 157/2008/QD-TTg dated 01/12/2008 and Decision No. 1404/QD-TTg dated 31/08/2009 by the GoV; Decision No. 3365/QD-BNN/TCCB dated 01/12/2005 by MARD and Decision No. 07/2006/QD-BQLQLHVS dated on 05/09/2006 by Chairman of Red RBPMB

However, the operation of RBOs in Vietnam reveals institutional patches in RBM in the coordination between different levels. In addition to the dispute between MARD and MoNRE on the management

of RBOs, there are also issues between national and provincial or sub-provincial governments. Since the central ministries take the lead in decision-making, the provincial voices carry lesser weight. The performance of provincial line agencies within the RBOs is influenced by both central ministries and provincial PCs. Molle & Hoanh (2009) construe the situation as follows: Although the RBOs' authority is merely advisory, the control over RBOs is still of great importance since river basin planning and management is an integral part of decision-making and a means to guide investment flows.

As such, MARD and MoNRE do not want to relinquish control to each other, or let RBOs become more autonomous. The provinces, on the other hand, are aware that the state management functions in their territories are infringed upon by central ministries or RBOs. But they have to rely on the ministries for technical and monetary support (through budget allocation) even though they do not want their power to be transferred to an inter-provincial organization. At the administrative jurisdiction level, each province has its own stance on environment and development. The rotation of the chairman's position in RBOs among local provinces will show how the province chairing the RBO often prioritizes its own issues. Even if there is a consensus on a decision after discussion, there is no guarantee that it will be implemented if the provinces have different agendas. RBOs are essentially advisory bodies, and the chair province can therefore only proffer advice to the other provinces in the basin, it cannot force them to implement it. RBOs have been maintained as symbolic organizations rather than effective regulatory bodies at the basin level.

5.2 Empirical Cases of RBOs and National Cross-border Issues

The empirical case of the Nhue Day River reveals the conflict at the same jurisdictional level in an RBO. The Nhue River flows from Hanoi to Ha Nam before converging to the Day River in Phu Ly city. It was repeatedly reported that Hanoi was opening the gates in the Thanh Liet dam upstream, discharging untreated industrial and domestic wastewater downstream. The upstream flow pollutes the downstream river, where local people use its water to irrigate their rice fields, causing serious agricultural losses. The water supply plant of Ha Nam has been forced to close several times due to the sub-standard quality of intake from the Nhue River. Red RBPMC has repeatedly highlighted the role of Hanoi in polluting the Nhue Day River, but it has no power to make any changes.

Meanwhile, MoNRE, which is responsible for the management of environmental degradation, was involved in a power struggle with MARD, and could not make any effective intervention until the establishment of Nhue-Day RBPMC in 2009. At the provincial level, Ha Nam Province raised this issue within the Nhue Sub-RBPMC but Hanoi failed to respond promptly. The city is aware that most polluting factories in the area are State enterprises, allegedly old and inefficient, which would go bankrupt overnight if they had to treat their effluents (Molle & Hoanh, 2009). And for wastewater treatment infrastructure, Hanoi has to wait for budget allocation from the central government.

The Dong Nai River has been heavily polluted by the activities of cities and provinces in the basin. The river is dumped with domestic wastewater from the Ho Chi Minh City, which has seen a rapid rise in population and commercial activities. Binh Duong, Binh Phuoc and Dong Nai Provinces have contributed significantly to environmental degradation through industrial development and deforestation. Rapid development and expansion of sea ports, stacking yards and industrial zones in Ba Ria-Vung Tau are threatening the health of the mangrove forests and water resources. Hydropower and mining activities in Lam Dong, Dak Nong and Binh Thuan have affected the quality and hydrological condition of the river. The challenge is to ensure collaboration among the cities and provinces to resolve such economically-driven environmental issues. The Dong Nai RBPMC has found it difficult to coordinate on this task. Though MoNRE has given province-level DoNREs the power to deal with environmental fines and penalties, they flinch from imposing on the province's economic development agenda. Ho Chi Minh city, meanwhile, claimed it lacked the funds for wastewater treatment facilities and drainage system. The condition of the river is alarming but the RBPMC

continues to propose measures that seem impracticable for want of insufficient budget allocation for basin-wide environmental improvement.

6. INTERNATIONAL TRANSBOUNDARY RIVER BASIN MANAGEMENT: CASE OF THE SESAN

The second of the four Dublin Principles on IWRM posits the importance of stakeholder participation in the statement, 'Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels'. Participatory approach provides a consensus-building platform for all stakeholders, especially vulnerable people, to voice their opinion and contribute to the decision-making. However, lack of mechanisms for participation in international cross-border RBM deal a double blow to the affected communities. First, the local communities have to make their voices heard to their governments. Second, their governments represent them in negotiations with their neighboring government(s). This two-step mediation process needs two separate platforms so that protests, conflicts and requests can be properly resolved at the national level, between local communities and their government, and at the international level, between or among sovereign governments. The lack of such platforms for dialogue and mediation presents a 'double whammy' for the local communities, which was evident in the case of water management in the Sesan River Basin in Vietnam.

6.1 Characteristics and Water Resources Development in the Sesan Basin

The Sesan, Srepok and Sekong rivers are three tributaries of the Mekong River originating from the Central Highlands of Vietnam. The Sesan River flows across the Kon Tum and Gia Lai Province in Vietnam before entering the northeast Cambodia (Ratanakiri and Stung Treng Province). In Stung Treng Province, the river joins the Srepok and Seng Kong, and then meanders through Laos as the so-called 3S River. With a total drainage area of 17,100 km², of which 11,000 km² are located in Vietnam and 6,100 km² in Cambodia, the Sesan River Basin is one of the major tributaries of the Mekong River (WARECOD, 2012). The Upper Sesan in Vietnam flows through the mountainous areas with high gradient. The two main tributaries of the Sesan are Krong Po Ko, which has a basin area of 3,530 km², and Dak Bla with a basin area of 3,507 km². The average rate of flow reaches 408m³/s, or equivalent to the annual average flow rate of 12.9*10⁹ cubic meters (WARECOD, 2012). All of these attributes make the Sesan River a significant potential source of hydropower, the third in Vietnam after the Da and Dong Nai River (WARECOD, 2012).

The Sesan river basin is dominated by ethnic population. The Upper Sesan in Vietnam is home to many ethnic people, including the Gia Rai and Bana, in addition to the majority Kinh migrants (SWECO, Gröner, & Norplan, 2008). The Lower Sesan in Cambodia is populated by 13 ethnic groups, including the Lao, Jarai, Kachok, Tampuan, Brao, Khmer, Kavet, Chinese, Lao Deum, Khmer Kho, Khmer Padeum, Pnong and Kreung. They are vulnerable people whose livelihoods rely heavily on natural resources, such as, fishing, agriculture and collection of non-timber forest products (Grimsditch, 2012; Öjendal, Mathur, & Sithirith, 2002).

The ecological and social characteristics of the basin determine the manner in which its water resources are utilized. In addition to domestic consumption, the basin's water resources are also used for farming, and fishing, which is predominant in the Lower Sesan in Cambodia, as it is the chief means of livelihood for its inhabitants. On the other hand, its host countries also capitalize on the basin for energy in a bid to further their economic development.

In 2007, MARD prepared the report 'Water Resources Planning and Management for Sesan River Basin', warning that the Upper Sesan Basin in Vietnam is suffering from flooding, drought and

pollution. MARD then issued the 'Plan on Integrated Uses and Protection of Water Resources in Sesan River Basin'¹⁶, envisaging the multiple uses of Sesan River for irrigation, domestic and industrial uses, flood control, hydropower, and for regulating the downstream flow. The plan, however, covers the river basin in nine provinces of Vietnam, but not the cross-border downstream.

6.2 National Governments' Stance on Hydropower Plant Development and its Impacts on the Sesan

Both Cambodian and Vietnamese Governments have been pushing for the development of hydropower plants to fuel economic growth. Vietnam constructed its first hydropower dam (Ankroet Hydropower Plant in Da Dung River) in 1943 during the French colonial period. Since then, the country has built many hydropower dams, from small to large. The Sesan River Basin itself has seen the development of several hydropower plants, such as, the Yali Hydropower Plant (720 MW), Pleikrong Hydropower Plant (100 MW), Sesan 3 (260 MW), Sesan 3a (96 MW), Sesan 4 (360 MW), Sesan 4a (63 MW), and Upper Kon Tum Hydropower Plant (220 MW), which will be operational in 2014. Despite being more advanced in hydropower energy production as compared to its neighboring countries, Laos and Cambodia, Vietnam is still facing energy shortage due to its ever-increasing demand for electricity due to industrialization (Grimsditch, 2012).

To make up for the shortfall in energy production, the country purchases electricity from neighboring countries, and, at the same time, invests in hydropower dam development in Laos and Cambodia. This vision was reiterated in the 'National Electricity Development Plan for 2011-2020 with consideration up to 2030'¹⁷ in which hydropower is envisioned to form 23.1 percent of the country's total power supply by 2020. Hydropower development is prioritized due to the multiple uses of dams—for flood control, water supply and power generation. The government is pushing for more energy imports, and has formed energy production partnerships, starting with Laos, Cambodia and China. Thus, collaborative projects between Vietnam and Cambodia in the 3S River Basins have been accelerated, e.g., Lower Sesan 2 (400 MW), Lower Sesan 1/5 (96 MW) and Lower Sekong (190 MW). The National Electricity Development Plan, however, is also keeping an eye on the ecological costs of such projects, and insists on undertaking Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) for hydropower development plans and projects as well as post-project monitoring and inspection.

Cambodia too has a rising demand for energy; the country only had 24 percent access to electricity in 2009 (World Energy Outlook 2011). It is also seeking more affordable and less import-dependent power supply rather than having to rely on oil for its diesel-fueled power plants. Cambodia's 'National Strategic Development Plan for 2009–2013' prioritizes energy development and increase in reliable electricity supply and low tariffs. The country has set up targets to develop its untapped hydropower resources. The Ministry of Industries, Mines and Energy was assigned to work on promoting the exploration of energy sources such as hydropower, ensuring confidence and stability in electricity supply, encouraging the efficient use of energy and mitigating adverse effects on the environment; encouraging the private sector to invest in the energy sector; and promoting regional energy trade through bi- and multi-lateral cooperation (Grimsditch, 2012).

In 2012, a large-scale hydropower plant, Kamchay, was constructed in the Kampot province. In addition, there are also several plants currently under development in the Koh Kong province (Grimsditch, 2012). Within the Sesan basin, Cambodia has planned to build at least three hydropower dams, namely Lower Sesan 2 (400MW), Lower Sesan 3 (325 MW) and Lower Sesan 1/5 (96MW). Of these three, the largest dam, the Lower Sesan 2, was partially financed by the Electricity of Vietnam (EVN), the Vietnamese state power company. The project was approved in 2012, and the

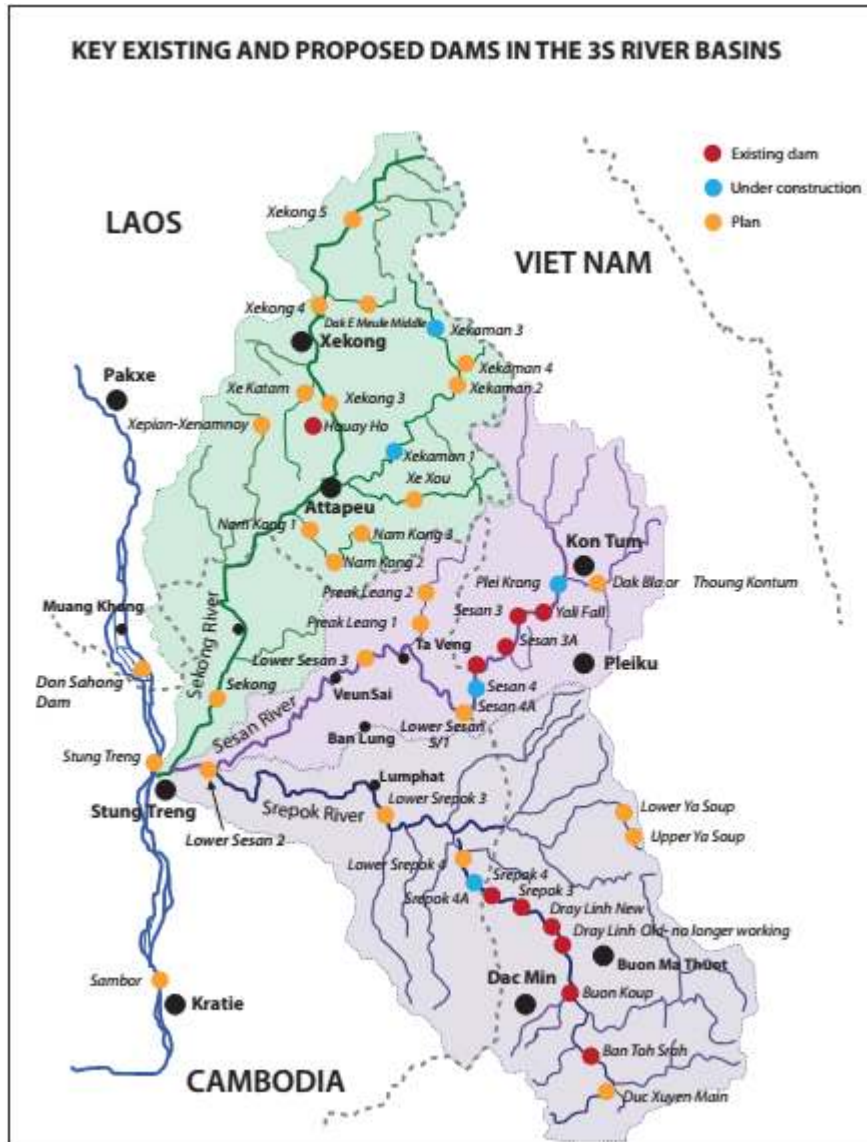
¹⁶ Decision No. 2970/QĐ-BNN-KH dated 09/10/2007 by MARD

¹⁷ Decision No. 1208/QĐ-TTg by GoV dated 21/07/2011

construction is expected to begin by 2014. In addition, three more hydropower dams are proposed in the 3S River Basins (see

Figure 2), the Lower Srepok 3 (300 MW), Lower Srepok 4 (200 MW) and Lower Sekong (190 MW) (Grimsditch, 2012).

Figure 2. Major existing and proposed dams in the 3S River Basins



Source: Grimsditch (2012)

In their bid to increase their energy supply, Cambodia and Vietnam have scrambled to exploit the hydropower potential of water resources of both internal and trans-boundary rivers in the Sesan River Basin. The main policy stance on socio-economic and environmental impacts is to minimize repercussions from hydropower development or abort the plan, based on the 'no development' alternative in the Vietnamese laws on SEA. In practice, however, it would be difficult to reconcile the stark contrast between the needs of upstream communities, who may benefit from the hydropower dam development, and downstream communities, who may be affected by the negative effects of dam development, especially if these two communities are governed by two different administrative authorities, or worse, different sovereign governments.

Conflicts between the upstream and downstream of a trans-boundary river also emerge when both sides attempt to get the maximum benefit from the river. In the case of Sesan River, the Government of Cambodia argued that the people of Cambodia are entitled to equal rights to the river, and, hence, should also benefit from it (Grimsditch, 2012). The Government of Cambodia has thus gotten into a race to harness hydropower from the river downstream, which is already undergoing degradation due to the upstream developments in Vietnam.

6.3 The Role of Multilateral Organizations in Hydropower Plant Development in the Sesan

Multilateral development banks have been largely involved in hydropower development in the basin. Asian Development Bank (ADB) and World Bank (WB), in particular, have played influential roles in both planning and implementing hydropower development projects in the Sesan.

The ADB has funded several TAs related to hydropower development in the region (Grimsditch, 2012), including: (i) TA No.5697-REG (Se Kong-Se San and Nam Theun River Basins Hydropower Development Study); (ii) TA No.3222-VIE (Preparing the Sesan 3 Hydropower Project); and (iii) TA No. 6367-REG (Sesan, Sre Pok and Sekong River Basins Development Study in Cambodia, Lao People's Democratic Republic, and Vietnam). TA No.5697-REG identified six dams to be built in the 3S River Basins, including Sesan 4, Lower Sesan 2 and Upper Kontum on the Sesan River (Halcrow, 1999). Yet the study was condemned for excluding public consultation in the process.

The preparatory TA No.3222-VIE by ADB aimed to lay the groundwork for Sesan 3 to be a model hydropower project. Downstream impact studies were added to the TA's scope of work after the report on the tangible disastrous downstream impacts of the Yali dam. The TA is considered to be 'generally successful' despite the fact that an EIA and the Minority People's Development Plan were not completed as planned due to the changing circumstances during the TA implementation (ADB, 2001). The change was rooted in the GoV's decision to undertake the additional social and environmental impact assessments internally. It also sent a formal communication to ADB, saying that it no longer required its assistance to implement the project (White, 2000). ADB then withdrew its loan for Sesan 3. But the construction of the Sesan 3 dam still went ahead through funding from the Russian government, and it was completed in 2006.

ADB later attempted to strengthen the capacity for cross-border and inter-sector planning and management of development in the 3S River Basins. The three-year TA No. 6367-REG, which started in April 2008, aimed to improve information sharing and dialogue through the development of a website documenting the studies' findings, documents, reports, data, links and other useful materials to facilitate research and dialogue in the basins. A number of workshops at basin, national and trans-boundary levels were also organized to practice stakeholder consultation and get feedback on the planning and operation of hydropower dams in the 3S River Basins. The major output of the TA is the roadmap for addressing current challenges and threats, and improving collaboration and coordination at different levels within the river basins.

The TA highlighted the need for cumulative impact assessment (CIA) in hydropower development, and mapped plans to build the capacity for CIA as well as to conduct a full CIA for hydropower development in the entire area (ADB, 2001). The TA team also tested and boosted the use of International Hydropower Association Sustainability Assessment Protocol to assess the sustainability of hydropower dam. The roadmap includes plans for (i) monitoring and analysis of the current situation and trends, (ii) assessment of development options and impacts of planned development and investments, (iii) management and monitoring of development implementation and operation, and (iv) dialogue and institution building. The inclusion of CIA and public consultation made the roadmap a potentially good initiative for changes in water resources management in the 3S River Basins. Nevertheless, no formal collaborative arrangements were made to follow up and sustain this

initiative and at present there is no movement to indicate that ADB will pursue future projects building on the implementation of the roadmap in the 3S area (Grimsditch, 2012). The outputs of the TA are, therefore, yet to be acted upon in the basin.

On the other hand, ADB has fostered the development of transmission lines and power trading within the Greater Mekong Sub-region (GMS). For example, the TA 6481-REG (Preparing the Ban Sok-Pleiku Power Transmission Project in the Greater Mekong Subregion) aimed at giving loans to Laos and Vietnam to connect several hydropower dams on the Sekong River to the transmission lines of Vietnam is currently under consideration (Grimsditch, 2012). The TAR: CAM 3439 (Preparing the Power Distribution and Greater Mekong Subregion Transmission Project) and ADB LOAN: CAM 34390-01 (Greater Mekong Subregion Power Transmission Project) are also geared to connect West Phnom Penh Substation to the Vietnamese border. The SAP: REG 2008-51 (Energy Sector in the Greater Mekong Subregion) predicates the necessity of regional power trading within the GMS by referring to the prosperous endowment but uneven distribution of energy resources between the countries.

The World Bank (WB) has engaged in various hydropower planning studies in Vietnam, such as, the preparation of the National Hydropower Master Plan in 2001. WB also invested significantly in restructuring EVN and reforming the power sector in Vietnam¹⁸ (Middleton, Garcia, & Foran, 2009). The Bank funded the construction of transmission lines connecting Vietnam with the hydropower dams in the Sesan River Basin in Cambodia¹⁹. In Cambodia, WB supports the country's transmission project to connect Phnom Penh to the transmission line on the Vietnamese border. The Laos government has also sought assistance from WB to back its hydropower development plans (e.g., the Nam Theun 2 Dam). In the 3S River Basins, WB worked closely with ADB to formulate a new strategy for supporting the development of power trading in the GMS²⁰. WB is also exploring possibilities to cooperate in investment in power transmission infrastructure, cross-border power trading and sustainable hydropower development (ADB, 2008).

Apparently, while the technical assistance and due diligence studies supported by ADB and the WB fundamentally shaped the hydropower development in the early stages, the banks did not directly invest in the construction of the dams. It is assumed that the projects have not complied with the banks' safeguard principles, especially in trans-boundary impact assessment. Most of the time, the EIAs were either skipped or only conducted after the approval or even commencement of the projects (Grimsditch, 2012). Recently, the banks moved their investment to transmission system, in which social and environmental impacts were scrutinized merely for the transmission lines, yet did not include the hydropower dams that the lines connect to. The development of transmission infrastructure, however, influences the planning of hydropower plants since it is an intermediate to connect energy producers and users. Grimsditch (2012) elaborated that the transmission lines would not be necessary without the construction of new hydropower plants, and the construction of proposed hydropower plants would not be feasible without the means to transmit the power.

6.4 Trans-boundary Impacts of Water Storage Infrastructure Development in the Sesan Basin

The development of water infrastructure in the Sesan River illustrates the cross-border impacts of upstream hydropower dam management on downstream communities in a transboundary river basin. As documented, the construction and operation of the Yali Hydropower Dam in Vietnam is causing large-scale adverse effects on not only the local people in Kon Tum and Gia Lai Provinces in

¹⁸ World Bank Project ID P045628, Transmission, Distribution, and Disaster Reconstruction Project

¹⁹ World Bank Project ID VNPA45628, Vietnam-Transmission and Distribution Development Project

²⁰ World Bank Sector Report 19067, Power Trade Strategy for the Greater Mekong Sub-region

Vietnam but also on riparian communities in Ratanakiri and Stung Treng Provinces in Cambodia (Hirsch & Wyatt, 2004; Öjendal, Mathur, & Sithirith, 2002).

The Yali Dam, construction on which started in 1993, is the first dam in the Sesan River Basin. From 1996 to 2001, it was reported that unanticipated surges and fluctuations in the river caused casualties and washed away properties of people living downstream. The break of the cofferdam in 1996 was claimed to be responsible for massive flooding in downstream Cambodia (Down River, 2005). The flash floods in February 2000 resulted in several deaths and loss of livelihoods of fishers and farmers in Ratanakiri, Northeastern Cambodia. A series of studies carried out later (Fisheries Office & NTFP, 2000; Baird, et al., 2002) indicated that the operation of Yali Falls Dam upstream led to uneven flooding events, increased dry-season flows, caused unpredictable fluctuations in river flows and height, degraded the water environment, and had adverse impacts on health and fisheries. The adverse consequences include deaths by drowning, income losses, health impacts, and degradation of resources. McKenney (2001) computed the economic losses of quantifiable impacts of 3,434 households in 59 villages in Ratanakiri Province to be a total of USD 2,579,391 in annual household income, and USD 812,760 for other tangible losses due to flashfloods resulting from dam water releases from 1996 to 1999.

Whilst the studies and documents were publicly released, Vietnam still did not agree with the results, arguing that there wasn't enough evidence to link all damage downstream in Cambodia to the operation of the Yali Falls Dam upstream (Wyatt & Baird, 2007). The country later conducted an EIA of hydropower development downstream in the Sesan River. The report stated that all the floods before 1999 were not caused by the dam development since the Yali Dam was not operational at that time, and that the flood in 1996 was not the consequence of the cofferdam break, but rather an extreme natural flood (SWECO Grøner, Norwegian Institute for Water Research, ENVIRO-DEV, ENS Consultant, 2007).

6.5 Initiatives of Civil Society Organizations

During the incident in February 2000, the Sesan Working Group was established with the participation of international and local NGOs to investigate and report the impacts of the flooding. This group worked collaboratively with the provincial fisheries' offices and completed two impact studies in Ratanakiri and Stung Treng Provinces, which documented the downstream impacts of the Yali Falls Dam in the two provinces. The study called upon the Cambodian government to begin addressing the issue and negotiate with Vietnam (Trandem, 2008).

The early Sesan Working Group was an unofficial workforce that was set up for only temporary tasks without any legitimacy and clear mandate. The group later recognized the need for an official organization, capable of assisting the vulnerable people living along Sesan River more effectively. Moreover, the third party observers also witnessed the unsuccessful negotiation between the Cambodian and Vietnamese governments, opening the possibility that the operation of the dam would continue threatening the lives of downstream people. The Sesan Protection Network (SPN) was then formed in 2001. The SPN is a community-based network, whose Secretariat is based in the Ratanakiri Province. The network has a working mandate, including but not limited to (i) call for support to resolve conflict from all levels of government, MRC and multilateral and bi-lateral development assistance agencies; (ii) documentation of impacts in the absence of official studies; (iii) provide legal analysis of breaches in international environmental and human rights law; and (iv) engage in dialogue with the Mekong River Commission and the Cambodian National Mekong Council (Hirsch, Carrard, Miller, & Wyatt, 2005).

The Secretariat, assisted by the Sesan Steering Committee and the Sesan Project Advisory Board, took up the responsibility of implementing the SPN's working program at the local level (Hirsch &

Wyatt, 2004). The Sesan Steering Committee is composed of senior representatives from local indigenous groups, and a local NGO, Non Timber Forest Products Project (NTFP); on the other hand, the Sesan Project Advisory Board is a coalition of international NGOs and academics for introducing SPN and the Sesan issues to the international community (Hirsch & Wyatt, 2004). To work on strengthening the community network, the SPN set up Sesan Community Networks (SCN) consisting of nominated respected villagers with the approval of local authorities, Commune Chief and Village Chief. Within the SCN, the focal persons are responsible for documenting the issues raised regarding Sesan River and their impacts on the local communities. The group of elders assists the group of focal persons in working at village level, for example, in collecting and disseminating information related to the Yali Dam, and in mobilizing locals for advocacy.

With the assistance of the SCN, the SPN held the first National Sesan Workshop in November 2002, which was attended by government representatives from the two provinces, to present its demands as follows (Hirsch & Wyatt, 2004):

- i. Request the government along with organizations (international) to help stop the construction of hydropower dams on the Sesan River, particularly Se San 3 and Se San 4;
- ii. Request the natural flow of the river be restored;
- iii. Request the dam builders and stakeholders, who have funded the construction of the dam, to compensate villagers for all losses, destruction of properties and equipment;
- iv. Request the government of Cambodia to negotiate with the government of Vietnam to find a solution; and
- v. Request the MRC and its stakeholders to visit the provinces to study the impacts in consultation with the people along the Sesan River.

In the workshop, the affected people living downstream of the Sesan River had their concerns heard by the local government, initiating further negotiations with the neighboring state. Nonetheless, whilst the Vietnam officers were not invited to this workshop, the absence of national-level Cambodian government representatives as well as those of the MRC limited the opportunity for the communities to amplify their concerns. The SPN sought to engage the Cambodian government and the Cambodian National Mekong Committee for a comprehensive local, national and international coalition, which is competent and influential to get Vietnam back to negotiation table and to request the MRC to assist in adopting a resolution. However, since the Government of Cambodia was also planning to develop hydropower on the Sesan River, it was lukewarm to SPN's plan. The lack of political will at the national level, thus, curtailed not only the implementation of the plan at the provincial government level only (Hirsch & Wyatt, 2004) but also constrained the involvement of MRC in the negotiation process.

In 2005, the SPN was expanded to 3SPN, covering the Srepok and Sekong River Basins as well. The organization was registered with the Ministry of Interior, gaining legitimate recognition. To date, the 3SPN continues working on advocacy, empowering the people living alongside the Sesan, Srepok and Sekong Rivers in the water resources development in the region. The organization campaigns for the rights of the local people, while also engaging and strengthening their capacity in monitoring, information collection and dissemination, conducting advocacy and dialogue.

These initiatives have built up the local capacities of people to publicly raise their concern over the impacts of hydropower development on their livelihoods. It has contributed to giving more ground to the government to initiate negotiations with its neighboring governments. Nonetheless, the community social organizations have been limited in participation or mostly excluded from the negotiation and decision-making process. Although 3SPN was given official legislative recognition, its operation has been largely dependent on donors and patronages. This raises a question on the sustainability of similar organizations and also the influence (if any) of donors on the organizations.

6.6 Mandate and Initiatives of MRC in Bilateral Investigation and Negotiation

Under the 1995 Mekong Agreement, which was ratified by both Cambodia and Vietnam, the MRC is endorsed to take the lead role in the joint planning of water resources development and trans-boundary issues in the basin-wide context. According to Article 1, Article 4 and Article 7 of the Agreement, the water resources should be planned and managed to optimize their multiple uses, to ensure equal benefit sharing, and to respect sovereign equality and territory integrity, provided that the countries cause no harm to the others. In its Strategic Plan for 2011-2015, the MRC preserved its role in harmonizing benefits and ensuring equity among the Member Countries and their people, and in monitoring the Basin's environmental health by undertaking environmental and social impact assessments, and, when necessary, strategic impact assessments (MRC, 2011).

In terms of hydropower, the MRC shall help its member states in gauging the benefits and impacts of the proposed dam, facilitate dialogue among the major stakeholders, including Governments, civil society and the private sector, and introduce a more holistic approach to the assessment of risks and opportunities (MRC, 2011). Articles 34, 18C and 24F give the Commission the right and responsibility to address issues and disputes raised before it by the member states. It is noteworthy that the MRC was formally established in 1995 when the 1995 Mekong Agreement came into effect, and that under the Agreement, the MRC as an inter-government river basin organization is mandated to support, cooperate and coordinate 'only' its member states in water development-related issues in the basin.

As an international trans-boundary river in the Mekong River Basin, Sesan is obviously in the MRC's sphere of influence. During the crisis of the Yali Falls Dam, people first looked toward the MRC as a river basin management organization to mediate the conflict. In response to the report by Cambodia National Mekong Committee on the incident in February 2000, the MRC organized an investigation in Ratanakiri from March 16 to 19, 2000. Subsequently, it facilitated a meeting between the Cambodian and Vietnamese Governments in April 2000, but that did not yield any result (Hirsch & Wyatt, 2004). During that time, the reluctance of the Government of Cambodia to make an official complaint regarding the disastrous event in March 2000 to MRC, constrained the Commission from giving an official judgment on the incident in its capacity as an expert in water governance and conflict management in the Sesan Basin. Consequently, despite the unwearied advocacy of SPN, the MRC, with no mandate to respond to sub-national constitutions, has avoided making any intervention except in continuously advising SPN to work with the governments on their concerns (Wyatt & Baird, 2007).

When the Commission is not able to resolve disputes under Article 34, Article 35 can be raised. Article 35 mandates that in such case, the issue shall be referred to the governments to bilaterally negotiate for mutual agreement. In 2002, at the Mekong River Commission's 7th Council Meeting, the MRC facilitated the establishment of the Cambodia-Vietnam Joint Committee for the Management of the Sesan River. The Committee met several times in order to determine mitigation measures for trans-boundary impacts of the Yali Falls Dam. The MRC participated in the Joint Committee meetings but limited its involvement to providing facilitators, language interpreters, and neutral technical advice/data to support the bilateral negotiation. The MRC also provided detailed recommendations on the Terms of Reference (TOR) for the hydrodynamic modeling of the Sesan Basin, and an EIA of the Sesan River from the Vietnamese border to Voen Sai District in Ratanakiri Province, Cambodia in early 2002 (Hirsch & Wyatt, 2004).

6.7 Bilateral Government-to government Initiatives

Since it was formed, the Joint Committee has met sporadically, and bilateral negotiations were carried out in the meetings. The agenda set for the first meeting in 2001 was to improve the communication between the two countries on water releases from the Yali Dam, and to conduct water quality test in the Sesan River. The two sides reached an agreement on the issues, and water quality analyses were carried out by both the sides following which it was announced that the quality of the water was acceptable. The first meeting also covered the preparation of ToRs for the hydrodynamic modeling of the Sesan Basin and an EIA of the Sesan River from the Vietnamese border to Voen Sai District in Ratanakiri Province, Cambodia. The ToRs were vetted by both MRC and SPN, and the discussion on the ToRs continued in the second meeting of the Joint Committee. The first meeting, in general, met all the objectives set in its agenda. Nevertheless, the SPN disagreed on the result of water quality tests, particularly those conducted in Cambodia, pointing out that the tests were carried out in a very short period, and called for more comprehensive studies (Hirsch & Wyatt, 2004).

The second meeting in 2002 discussed communication to minimize potential adverse downstream effects and the ToRs. First, suggestions were given on ways to deliver notification on water release from the Yali Dam to Cambodian communities in order to take into account and compensate for the poor communication infrastructure in Ratanakiri. Second, both Cambodian and Vietnamese representatives agreed on the proposed ToRs to cover the downstream part in Cambodia in the EIA of hydropower development in the upstream Sesan River. The EIA was financed by Vietnam, which also preserved the right to select the consultants to conduct the EIA. The appointment of SWECO and Grøner to be the EIA consultant was initially not amenable to Cambodia.

According to the Cambodian representatives, since the two companies were also involved in other studies on hydropower plants in Vietnam, there was a conflict of interest, and that any resolution would not be mutually adopted (Hirsch & Wyatt, 2004; Down River, 2005). The Vietnamese representatives, on the other hand, reasoned that it would be a co-benefit if SWECO and Grøner, who were studying other hydropower developments in the Sesan Basin, undertake the EIAs. An agreement was reached through negotiation, and the EIA on the Cambodian part of the Sesan River due to hydropower development in Vietnam was finalized in 2007. There was also a discussion on the hourly data of the water levels on the Sesan River in 2001 provided by the MRCS. The data showed that the amplitude of diurnal fluctuations of the water levels in the Sesan River exceed one meter within 24 hours, which could be attributed to the operation of the reservoir downstream. This critical finding was a turning point and provided more grounds for discussions in the next meetings of the Joint Committee regarding the initial claims of the Vietnamese Government that there was no rigorous evidence to link up the operation of Yali Dam to changes in water levels in the Sesan River.

At the third meeting of the Cambodia-Vietnam Joint Committee in 2003, the Vietnamese Prime Minister directed the EVN to implement a package of five measures, expressing the political will to cooperate for mitigating the impacts of the Yali Dam on the downstream Sesan River. It included providing advance notification of water release, committing to control the discharge from the reservoir so as not to harm those downstream, and seeking for discussion, in consultation with MRC, on the need for environmental mitigation studies. The Cambodia reiterated its concern on the significant fluctuation of water levels in the Sesan River, while the Vietnamese representatives pointed out the positive impacts of the Yali Dam in increasing water levels during the dry seasons. The Vietnamese delegation then suggested building the Sesan 4, a re-regulating dam one kilometer away from the Cambodian border to stabilize the water flow from upstream to Cambodia, which was appreciated by the Cambodian representatives (Thim, 2010). The construction of Sesan 4a began in 2004 and the dam was fully operational in 2011.

The annual meeting of the Joint Committee was, unfortunately, suspended from 2004 until 2008 when the fourth meeting was financially supported by Vietnam. In addition to the discussion on improving information exchange, the two countries focused on the implementation of the five mitigation measures proposed by the Vietnamese Prime Minister in 2003. The results of the hydrodynamic modeling and the trans-boundary EIA of the Sesan River were also discussed (Thim, 2010). Furthermore, Cambodian representatives were invited to visit the Sesan 4a site in 2008 to see the re-regulating dam, which was in line with the commitment of the Vietnamese Government to minimize the negative impacts from upstream hydropower dams.

Through the meetings of the Cambodia-Vietnam Committee, the trans-boundary issues of hydropower on the Sesan River were discussed and recognized by the participants. Several resolutions have been proposed, adopted and implemented. The role of MRCS as a facilitator somewhat contributed to the achievements. The engagement of SPN as a grass-root community organization enabled the affected community to give comments on the ToRs of the transboundary EIA. However, SPN was restricted from playing a role in the decision-making process. Information exchange between Vietnam and Ratanakiri in Cambodia remains hindered by poor communication conditions in the area. Moreover, the Joint Committee, in disregard to its mandate on management of the Sesan River, has not questioned the issue of development of more hydropower dams or adopted any formal agreement on trans-boundary and cumulative impact assessment of hydropower development in the basin. The suspension of the Joint Committee meetings, while temporary, due to financial constraints (Thim, 2010) as claimed by Cambodia, and the country's ambitious plans for hydropower development on the Sesan River seem to indicate lack of interest of the Cambodian Government to work on the issues.

On a positive note, bilateral talks often pave the way for tackling the possible trans-boundary impacts of the hydropower plants. Cambodia entered negotiations, at the behest of the affected communities, to request Vietnam to mitigate the adverse impacts of the Yali dam, from which a solution was officially agreed to and adopted. However, the compensation for loss and damages incurred to the locals still lagged behind due to the absence of evidence that the flood was caused by the Yali Hydropower Plant, and the lack of effective arbitrary mechanism. Furthermore, the protests by the local people, calling for an end to further hydropower development in the Sesan River Basin were also ignored. Since both the countries are ramping up their energy production for economic growth, any effort to review or suspend any hydropower plan, in view of the environmental risks they pose, is expected to wear out eventually.

6.8 Vietnam's River Basin Organizations in the Sesan River Basin

Although the Sesan River has been suffering from pollution and erratic changes of hydraulic schemes for a long time, the government did not officially recognize the necessity of a basin management organization until recently. Since the river was unsustainably used for multiple purposes, its water is contaminated by agricultural, industrial and domestic activities. Locals experience low water levels in the river during the dry season and flooding during the rainy season (Minh Trang, 2012). In 2012, MoNRE submitted to the GoV the proposal to establish Sesan-Srepok River Basins Committee as an RBO under DWRM of MoNRE. The River Basins Committee was to take the lead in coordinating and monitoring planning, exploiting, using, protecting, and distributing the water resources as well as controlling and mitigating floods in the basin.

However, even before the said proposal in 2012, an RBO was already active in the 3S River Basins. The Srepok River Basin Organization was established in 2008. It received initial funding support from DANIDA, and it is under the control of MARD and the Provincial PCs²¹. The Srepok RBO functions as an advisory body on water use strategies and policies; basin planning; flood control and

²¹ Decision No. 41/2006/QD-BNN dated 25/05/2006 by MARD

management; trans-boundary water uses, exploitation, protection and management downstream; and international and inter-provincial water dispute resolution in the Srepok basin only. The establishment of Srepok RBO received enthusiastic consent, support and commitment from the provincial governments. To perform its mandates, the RBO assisted in conducting a baseline survey in the Southern Krong Ana Watershed (a tributary of the Srepok River) and establishing the institutional taskforce for watershed management in the Krong Ana. The RBO also sent representatives to attend the meeting related to Srepok and 3S River Basins organized by the MRC and Vietnam National Mekong Committee (VNMC).

The RBO held two annual meetings in 2007 and 2008. The Minutes of the Second Annual Meeting in 2008, which document the comment of Mr. Nguyen Huu Chung, Director of the Office of Srepok RBO, that the establishment of the Srepok RBO by MARC did not fit in with the current situation (ministerial separatism in claiming the state management functions in water resources management – added by the author), illustrate the difficulties it faced during its operation. The transfer of state powers to MoNRE in governing the country's water resources eventually paralyzed the activities of the Srepok RBO. The RBO received poor funding support due to lack of budgetary allocation from the central state and almost no contribution from the provincial governments, which initially supported it. At the moment, the Srepok RBO does not conduct any activities except for participating in meetings if invited by the MRC or VNMC and other international organizations²².

To date, despite the critical challenge of water management in the 3S River Basins, particularly the Sesan River Basin, there is no specific institution that handles this function. Water resources in the basins are still managed sector-wise, with a predominance of hydropower development and irrigation. Trans-boundary issues in the basin are still handled by MARC and EVN, which remain very much engineering-oriented. The question is: What are the prerequisites for an RBO, and when is it essential to establish an RBO in Vietnam?

6.9 Transboundary Problems

6.9.1 Communication

The issue of effective cross-border communication for information exchange has been raised several times in the meetings of the Cambodia-Vietnam Joint Committee. The two countries have agreed that Vietnam shall inform its Cambodian counterpart whenever it plans to release water from its reservoir. This information enables Cambodia to prepare and brace itself for potential losses and damages. Two forms of notification delivery mechanisms were adopted: (i) formal delivery by Vietnam National Mekong Committee (VNMC) to Cambodia National Mekong Committee (CNMC), and (ii) informal delivery by the VNMC to the MRC and then to SPN. However, it was repeatedly reported that the local people did not receive any warnings regarding changes in the water level (Down River, 2005; Thim, 2010).

The gap in communication was mostly attributed to poor communication facilities in the Cambodian Provinces, such as, broken fax machines and lack of telecommunication facilities (Hirsch & Wyatt, 2004; Thim, 2010). The informal delivery system, which is expected to help distribute the information by informal sharing through the network, was hindered since MRCS did not have any budget to cover such activities (Thim, 2010). Thim (2010) also implied that poor communication and coordination between the agencies of the two countries led to the failure in information delivery.

6.9.2 Knowledge Claims Bearing on Issue Framing and Negotiations

Another issue is the insufficient knowledge about the transboundary impacts of hydropower dams, which lately influenced the process of impacts analysis. The first EIA of the Yali Hydropower Dam conducted by Electrowatt assessed the impacts of the dam only on 8 km downstream from the

²² Personal communication with a former Water Resources specialist of WATERSPS Project

source. It did not conduct impact assessment on the part of the basin under Cambodia's territory. The additional EIA of the Yali Hydropower Dam undertaken by SWERCO, which covered downstream basin in Cambodia, attributed the surge and fluctuation of water level of the Sesan River in March 2000 to natural floods rather than the dam operation located upstream in Vietnam. During the negotiation, Cambodia could not provide any hydrological monitoring data to illustrate that the sudden rise of water level in March 2000 coincided with the water releases from the dam upstream. As such, the connection between the operation of the Yali Dam and the incident was not established.

During the negotiations, Vietnam kept insisting about the benefits of the dam in mitigating water scarcity downstream during the dry season and the lack of other negative effects, and the Cambodian delegation was not able to provide any evidence to refute these claims. The lack of empirical evidence on the possible trans-boundary impacts of the infrastructure development happening upstream blocked the negotiation. MRCS later presented a monitoring data on hourly river level showing that diurnal fluctuations of water levels significantly varied by as much as one meter in 24 hours. The Cambodian Government and international observers attributed this fluctuation to the modification of the Sesan's hydrology due to the development of dam upstream. Only then were the two countries able to move forward on measures to mediate the impacts.

7. CONCLUSIONS: BASIN MANAGEMENT, BUT WITHOUT RBOS?

Since Vietnam's adoption of the concepts of IWRM and RBM, the country has made significant progress in water resources management practices. The establishment and implementation of RBOs strengthened the institutional and managerial structure of basin management in Vietnam. The report, by reviewing the historical development of river basin management in Vietnam, deduces the loopholes in institutional settings in water resources and river basin management in Vietnam, both in inter-provincial and international basins. It also suggests that the country needs to improve and adopt a sound and contextualized financial and institutional mechanism for an effective and inclusive RBM.

RBM was introduced in Vietnam as a step toward IRWM in order for the country to adapt to the contemporary changes in water governance landscape; where water is no longer considered an unlimited resource and where lack or improper management of water resources may lead to resource conflicts. The country set up several unitary basin management organizations as a means of implementing river basin and integrated water management. Modifications were made to address the contemporary issues above by applying the principles of RBM and setting up RBOs. The government has tried to plug the loopholes in the water governance system by passing laws and regulations on RBM and RBO, and transferring the mandate of RBM from MARD to MoNRE. To avoid repeating the limitations experienced by the Red RBPLMB, an RBO without any 'real' mandate, the new RBOs were proposed by MoNRE only for river basins scoping on environmental issues.

The gaps observed in the RBOs established under MARD were mostly attributed to the lack of sustainable funding mechanism after the funds from international donors dried up. The insufficient funding hindered the operations and activities of the RBOs, and some (i.e., Srepok RBO) even had to suspend their activities indefinitely. The case of the Sesan clearly demonstrated the lack of commitment from multilateral development banks to establish and sustain basin-wide organizations to manage and mediate the water quality degradation and resource conflict arising from the development of hydropower dams, which, ironically, they continue to invest in. Learning from past experiences, the GoV has prepared a funding mechanism for RBOs²³ that enables them to get budget

²³ Decree 120/2008/ND-CP dated 01/12/2008 by the GoV and Circular No.14/2009/TT-BTC dated 22/01/2009 by Ministry of Finance

allocation from central state and local authorities for environmental protection, economic development, and from international financial aid and other third-party contributions for specific projects.

The policy shift will take time to take full effect at the provincial level where MARD's authority is likely to remain firmly dominant (Molle & Hoanh, 2009). This also indicates, through institutional settings analysis, that the country may not be ready for an RBO yet. Before the Decree to transfer the management authority of river basins from MARD to MoNRE in 2008, MARD re-organized its structure, including that of the General Department of Irrigation, which is tasked with performing state planning and management of exploitation, uses and protection of hydraulic works (including water reservoirs), water supply and drainage, and water supply for rural areas²⁴. As such, the roles of water resources manager and operators are still entrusted to MARD, superseding the river basin planning and management functions of MoNRE. The existence of two RBOs with overlapping functions, RBPMB and RBEPC, in Rin Cau, Dong Nai and Nhue-Day River Basins reveals the mistake committed by the GoV in its water policy reforms.

It was reported that environmental contamination in the river basins is continuing (MoNRE, 2011) and that river basin planning is yet to be undertaken for multiple uses. For example, the Sesan River Basin was not effectively planned for inter-sector and cross-border cooperation. Despite significant efforts of the GoV to reform its basin-related policies and management practices, it still faces enormous challenges to improve the current performance of its RBM. Budgets for planned activities were reportedly insufficient. Absence of clear regulations on how to operate and coordinate among ministries, provinces and line departments resulted in loose ties between the member entities.

The rotation of the chairman's position in RBOs, which was meant to encourage the participation of the local government, led to decisions that were not fully and effectively implemented among all parties involved. Although formal consensus was reached in the decision, it was primarily due to the weight of the lobbying power wielded by the current chairperson; the implementation remains weak, if not totally lacking, due to the differing interests of the parties involved in the RBO. Furthermore, lack of conflict arbitration and resolution mechanisms and absence of legal mandate of RBOs to take charge in decision making in basin-wide issues (it has a limited function as an advisory body), often render their decisions ineffective and non-mandatory. Decision-making is still top-down; inter-provincial and international negotiations on water conflicts were handled and decided by the top ministries such as in the case of the Yali Dam. Moreover, all the actors involved raised concerns about the viability of such a river basin organization.

The adoption of IWRM in the country underscores the need for broader stakeholder engagement. Trans-boundary issues resulting in cross-jurisdictional economic and environmental conflicts on river basins must seek solutions through a multi-level and multi-stakeholder informed decision-making process, involving grassroots participation at a basin-wide level. The success of SPN/3SPN in making the voice of the marginalized people heard emphasizes the critical role of civil society organizations, especially if they do not have legal representation in the RBOs. Nevertheless, Fabres (2011) posits that civil society organizations in Vietnam are still in their infancy, and, thus, would need to be refined and molded further to fully sustain their mission in environmental protection and advocacy. In light of these limitations, in addition to the failure to empower and engage local governments in the decision-making process at the river basin level, the RBOs in Vietnam are not yet fully capable of carrying out participatory approaches in basin management prescribed by IWRM.

The lack of mechanisms for sustained funding and operation, coordination, negotiation and arbitration as well as public consultation casts a doubt on the readiness of Vietnam for RBOs. While IWRM underlines the importance of river basin management, it does not imply that RBOs are

²⁴ Decision 03/2010/QĐ-TTg dated 25/01/2010 by the GoV

irreplaceable. Svendsen, Wester, & Molle (2005) remarked: “There is an unfortunate tendency in some quarters to equate basin management with a unitary basin management organization and to assume that in the absence of such an organization, effective integrated management is not possible.” A proposed RBM modality for Vietnam in this period could be an agency that conducts coordination among line ministries and local authorities in river basin planning and management. Further, decentralization should not be limited to devolution of responsibilities to lower levels only (leading to technical capacity-building and participation), but may simultaneously involve the delegation of negotiating rights and responsibility for broad policy formation to higher levels (Nicol, 1996). While the proposed agency should ensure the inclusion of local authorities in the planning and decision-making process, it should not be party to the decision-making processes.

Such a mechanism will help to avoid the tensions that arise when trans-boundary river basin management has greater powers than the provincial governments. Each ministry, according to its functions in water resources planning and development, such as infrastructure development, flood control, environmental protection and water resources management at basin level, should submit its plans to the coordinating agency. The agency will then coordinate and incorporate the planned and ongoing activities in the river basin and submit its proposals to the government for approval. Implementation of activities proposed in the plans could also be undertaken in the same way. The agency should also be in charge of coordinating for conflict resolution by receiving the complaints and managing to establish an arbitration committee with the participation of stakeholders and approval from the Government. The river basin body may be composed of two components with a clear separation of mandates – a multi-level and multi-stakeholder governing committee and the coordinating and planning agency. However, it’s hard to steer the boat to its course when everyone is paddling in different directions. To (partially) remedy this, consensus that may be reached through the decisions of the committee should have a clear legal supporting framework that binds all parties involved to abide by its statutes.

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